

## TEST REPORT

Applicant Name TECHMADE SRL  
& Address: Zona Industriale ASI - Località Tavernette,  
81025 - Marcanise (CE),  
ITALY

Number: 20120431HKG-001

Date: 20 Jan 2021

### Sample Description:

**Product** : Fast Charger  
**Brand Name** : Techmade  
**Model No.** : TM-TC046AC  
**Electrical Rating** : Input: 110-240V AC 50/60Hz, 0.5A max., Class II  
USB-A output: 3.6-6.5V DC, 3A / 6.5-9V DC, 2A / 9-12V DC, 1.5A  
Type-C output: 5.0V DC, 3A / 9V DC, 2.22A / 12V DC, 1.67A  
USB-A + Type-C Total output: 5V DC, 3A

**No. of Samples** : 8

**Date Received** : 15 Dec 2020

**Date Test Conducted** : 16 Dec 2020 to 15 Jan 2021

**Test Requested** : Test for compliance with EN 62368-1:2014 + AC:2015 + A11:2017

**Test Method** : EN 62368-1:2014 + AC:2015 + A11:2017

**Test Result** : See the attached sheets.

**Conclusion** : The submitted samples Complied with the above safety standards.

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Tested by:

Approved by:

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Chau Shing Hang, Ivan  
Assistant Engineer

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Ng Shiu Yuen, Eric  
Assistant Technical Supervisor

## TEST REPORT

### TEST RESULTS

- Remark** :
1. When determining of test conclusion, measurement uncertainty of tests have been considered. The decision rule is based on ILAC-G8:09/2019 clause 4.2.1 with complying the relevant requirements of environment and equipment mentioned in IECEE OD-5014.
  2. The tested sample was submitted by client.
  3. The circuit diagram, label/ marking artwork and bill of materials were provided by client.
  4. The information on the certificate of critical components with mark of conformity is verified.
  5. According to the standard, instruction sheets and other texts required by the standard should be written in the official language(s) of the country in which the appliance is to be sold. The applicant should ensure that the sample in future production fulfil with the requirement.
  6. The testing ambient ( $T_{amb}$ ) is 25°C. Max. Ambient temperature ( $T_{ma}$ ) of 25°C was considered.
  7. Maximum output power of product in 12V DC, 1.67A.
  8. The instruction will be printed on marking label or user manual or gift box or included along with end product or similar means as following in English or language that is acceptable in the country:  
The socket-outlet shall be installed near the equipment and shall be easily accessible.
  9. Amendment EN 62368-1:2014 / A11:2017 is not published in the Official Journal to Directive 2014/35/EU.

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**TEST REPORT**

**TEST RESULTS**

EN 62368-1:2014 + AC:2015 + A11:2017

Clause	Title/Description	Result
0	Principles of this product safety standard	—
1	Scope	—
2	Normative references	—
3	Terms, definitions and abbreviations	—
4	General requirements	Complied
4.1	General	Complied
4.2	Energy source classifications	Complied
4.3	Protection against energy sources	Complied
4.4	Safeguards	Complied
4.5	Explosion	Complied
4.6	Fixing of conductors	Complied
4.7	Equipment for direct insertion into mains socket-outlets	Complied
4.8	Products containing lithium coin / button cell batteries	Not Applicable
4.9	Likelihood of fire or shock due to entry of conductive object	Complied
5	Electrically-caused injury	Complied
5.1	General	Complied
5.2	Classification and limits of electrical energy sources	Complied
5.3	Protection against electrical energy sources	Complied
5.4	Insulation materials and requirements	Complied
5.5	Components as safeguards	Complied
5.6	Protective conductor	Not Applicable
5.7	Prospective touch voltage, touch current and protective conductor current	Complied
6	Electrically-caused fire	Complied
6.1	General	Complied
6.2	Classification of power sources (PS) and potential ignition sources (PIS)	Complied
6.3	Safeguards against fire under normal operating conditions and abnormal operating conditions	Complied
6.4	Safeguards against fire under single fault conditions	Complied
6.5	Internal and external wiring	Complied
6.6	Safeguards against fire due to the connection of additional equipment	Complied

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**TEST REPORT**

**TEST RESULTS**

EN 62368-1:2014 + AC:2015 + A11:2017

Clause	Title/Description	Result
7	Injury caused by hazardous substances	Not Applicable
7.1	General	Not Applicable
7.2	Reduction of exposure to hazardous substances	Not Applicable
7.3	Ozone exposure	Not Applicable
7.4	Use of personal safeguards (PPE)	Not Applicable
7.5	Use of instructional safeguards and instructions	Not Applicable
7.6	Batteries and their protection circuits	Not Applicable
8	Mechanically-caused injury	Complied
8.1	General	Complied
8.2	Mechanical energy source classifications	Complied
8.3	Safeguards against mechanical energy sources	Complied
8.4	Safeguards against parts with sharp edges and corners	Complied
8.5	Safeguards against moving parts	Not Applicable
8.6	Stability of equipment	Not Applicable
8.7	Equipment mounted to a wall or ceiling	Not Applicable
8.8	Handle strength	Not Applicable
8.9	Wheels or casters attachment requirements	Not Applicable
8.10	Carts, stands, and similar carriers	Not Applicable
8.11	Mounting means for rack mounted equipment	Not Applicable
8.12	Telescoping or rod antennas	Not Applicable
9	Thermal burn injury	Complied
9.1	General	Complied
9.2	Thermal energy source classifications	Complied
9.3	Safeguards against thermal energy sources	Complied
9.4	Requirements for safeguards	Complied
10	Radiation	Not Applicable
10.1	General	Not Applicable
10.2	Radiation energy source classifications	Not Applicable
10.3	Safeguards for laser radiation	Not Applicable
10.4	Safeguards against visible, infra-red, and ultra-violet radiation	Not Applicable
10.5	Safeguards against x-radiation	Not Applicable
10.6	Safeguards against acoustic energy sources	Not Applicable

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**TEST REPORT**

**TEST RESULTS**

EN 62368-1:2014 + AC:2015 + A11:2017

Clause	Title/Description	Result
Annex A	Examples of equipment within the scope of this standard	Complied
Annex B	Normal operating condition tests, abnormal operating condition tests and single fault condition tests	Complied
Annex C	UV radiation	Not Applicable
Annex D	Test generators	Not Applicable
Annex E	Test conditions for equipment containing audio amplifiers	Not Applicable
Annex F	Equipment markings, instructions, and instructional safeguards	Complied
Annex G	Components	Complied
Annex H	Criteria for telephone ringing signals	Not Applicable
Annex I	Overvoltage categories (see IEC 60364-4-44)	Complied
Annex J	Insulated winding wires for use without interleaved insulation	Complied
Annex K	Safety interlocks	Not Applicable
Annex L	Disconnect devices	Complied
Annex M	Equipment containing batteries and their protection circuits	Not Applicable
Annex N	Electrochemical potentials (V)	Not Applicable
Annex O	Measurement of creepage distances and clearances	Complied
Annex P	Safeguards against conductive objects	Not Applicable
Annex Q	Circuits intended for interconnection with building wiring	Complied
Annex R	Limited short-circuit test	Not Applicable
Annex S	Tests for resistance to heat and fire	Not Applicable
Annex T	Mechanical strength tests	Complied
Annex U	Mechanical strength of CRTs and protection against the effects of implosion	Not Applicable
Annex V	Determination of accessible parts	Complied
Annex W	Comparison of terms introduced in this standard	Complied
Annex ZA	Normative references to international publications with their corresponding European publications	Complied
Annex ZB	Special national conditions	Complied
Annex ZC	National deviations	Complied
Annex ZD	IEC and CENELEC code designations for flexible cords	Not Applicable

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## TEST REPORT

### APPENDIX I

Table of critical components and materials

Object/ Part No.	Manufacturer/ Trademark	Type/Model	Technical Data	Standard <sup>2)</sup>	Mark(s) of Conformity <sup>1)</sup>
Enclosure	SABIC INNOVATIVE PLASTICS BV	940(f1)	PC; V-0; 120°C	EN 62368-1 / UL 94	UL / Tested in appliance / UL
Alternative	SABIC JAPAN LLC	945 (GG)	PC; V-0; 120°C	EN 62368-1 / UL 94	Tested in appliance / UL
PCB	KINGBOARD LAMINATES HOLDINGS LTD.	KB-6150C	V-0; 130°C	UL 94	UL
Alternative	GOLDENMAX INTERNATIONAL TECHNOLOGY (ZHUHAI) LTD	GDM-R1	V-0; 130°C	UL 94	UL
Alternative	Interchangeable	Interchangeable	V-0; 130°C	UL 94	UL
Current fuse F1	DONGGUAN Reomax Electronics Co.,Ltd	MTS	AC250V; 2A; time-lag	IEC 60127-3 IEC 60127-1	VDE
Alternative	DONGGUAN Better Technology Electronics Co.,Ltd	932	AC250V; 2A; time-lag	IEC 60127-3 IEC 60127-1	VDE
Alternative	King Wahoo Electronics Co., Ltd.	3TC	AC250V; 2A; time-lag	IEC 60127-3 IEC 60127-1	VDE
Alternative	Shenzhen Lanson Electronics Co., Ltd.	SMT	AC250V; 2A; time-lag	IEC 60127-3 IEC 60127-1	VDE
Inductance (L1)	SHENZHENSHI HUAXINDA ELECTRONIC CO LTD	6X10mm	300uH	EN 62368-1	Tested in appliance
- Magnet Wire	TAI-I ELECTRIC WIRE&CABLE CO LTD	UEW	Polyurethane; 130°C	UL 1446	UL
Alternative	TAI-I COPPER (GUANGZHOU) CO LTD	UEW	Polyurethane; 130°C	UL 1446	UL
-Heat shrinkable tube	GUANGZHOU KAIHENG ENTERPRISE GROUP	K-2, K-2 CTMS/TMS	600V; 200°C; VW-1	UL 224	UL
Alternative	SHENZHEN WOER HEAT-SHRINKABLE MATERIAL CO LTD	RSFR-H	600V; 200°C; VW-1	UL 224	UL
Optocoupler (U4)	Shenzhen Orient Components Co. Ltd.	OR1009	Insulation voltage min. 890Vpeak; 110°C	EN 60747-5-5	VDE

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### APPENDIX I

Cont'd

Object/ Part No.	Manufacturer/ Trademark	Type/Model	Technical Data	Standard <sup>2)</sup>	Mark(s) of Conformity <sup>1)</sup>
Alternative	Bright LED Electronic CO.,Ltd	BPC1009	Insulation voltage min. 890V <sub>peak</sub> ; 110°C	EN 60747-5-5	VDE
Input lead wire	DONGGUAN HAODE WIRE&CABLE TECHNOLOGY CO LTD	1007	PVC; 80°C; 300V; AWG 22 min.; VW-1	UL 758	UL
Alternative	SHENZHEN ZELONGKANG ELECTRIC LTD	1007	PVC; 80°C; 300V; AWG 22 min.; VW-1	UL 758	UL
Y-capacitor (CY1)	Jyh HSU (JEC) ELECTEONIC LTD	JD	AC 400V; Y1; 125°C; 2200pF	IEC 60384-14	VDE
Alternative	Shantou High-New Technology Dev. Zone Songtian Enterprise Co., Ltd.	CD	AC 400V; Y1; 125°C; 2200pF	IEC 60384-14	VDE
Alternative	SHENZHEN HAOTIAN ELECTRONIC CO.,LTD	HT	AC 400V; Y1; 125°C; 2200pF	IEC 60384-14	VDE
Alternative	Interchangeable	Interchangeable	AC 400V; Y1; 125°C; 2200pF	IEC 60384-14	VDE
Transformer T1	LUCHUANXIAN DAHAI ELECTRONIC CO.,LTD. GRI	1938-EE1611	Class B (See transformer specification)	EN 62368-1	Tested in appliance
- Bobbin	SUMITOMO BAKELITE CO., LTD.	PM-9820, PM- 9630	Phenolic; V-0; 150°C	UL 94	UL
- Magnet Wire	PACIFIC ELECTRIC WIRE & CABLE (SHENZHEN) CO LTD	UEW/U	Polyurethane; 155°C	UL 1446	UL
Alternative	SHEN ZHEN CHENGWEI INDUSTRY CO LTD	(x)UEW-E- (&)- (* )	Polyurethane; 130°C	UL 1446	UL
- Insulating tape	3M COMPANY ELECTRICAL MARKETS DIV (EMD)	1350-1 (b)	PET flim; 130°C	UL 510	UL
Alternative	P LEO & CO LTD	1A025	PET flim; 130°C	UL 510	UL
- Triple insulated wire	Furukawa Electric Co., Ltd	TEX-E	Max. 1000V <sub>peak</sub> ; 130°C	IEC 62368-1	VDE

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### APPENDIX I

Cont'd

Object/ Part No.	Manufacturer/ Trademark	Type/Model	Technical Data	Standard <sup>2)</sup>	Mark(s) of Conformity <sup>1)</sup>
Alternative	Totoku Electric CO LTD	TIW-3 xx yy	Max. 1000V <sub>peak</sub> ; 130°C	EN 61558-1	VDE
-Tube	GREAT HOLDING INDUSTRIAL CO LTD	TFL, TFS, TFT	150V; 200°C; VW-1	UL 224	UL
Alternative	GREAT HOLDING INDUSTRIAL CO LTD	TFS	600V; 200°C; VW-1	UL 224	UL
Alternative	GREAT HOLDING INDUSTRIAL CO LTD	TFT	300V; 200°C; VW-1	UL 224	UL
Alternative	CHANGYUAN ELECTRONICS GROUP CO LTD	CB-TT-T	300V; 200°C; VW-1	UL 224	UL
Alternative	FLUOTECH INDUSTRIES (Huizhou) CO LTD	TFT	300V; 200°C; VW-1	UL 224	UL
-Varnish	ELANTAS ELECTRICAL INSULATION ELANTAS PDG, INC.	468-2 (d)	130°C	UL 1446	UL

<sup>1)</sup> Provided evidence ensures the agreed level of compliance.

<sup>2)</sup> License available upon request.

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**TEST REPORT**

**APPENDIX II**

Details of marking description on the sample

The following information was printed or moulded on top & side enclosure of the appliance.



**FAST CHARGER**

P.N.: TM-TC046AC

Input:110-240V~,50/60Hz,0.5A

USB-A Output:3.6-6.5V==3A or 6.5-9V==2A or 9-12V==1.5A

Type-C Output: 5V==3A or 9V==2.22A or 12V==1.67A

USB-A+Type-C Total Output:5V==3A

Made in China

Lotto N°: 01/2021



**Remark:**

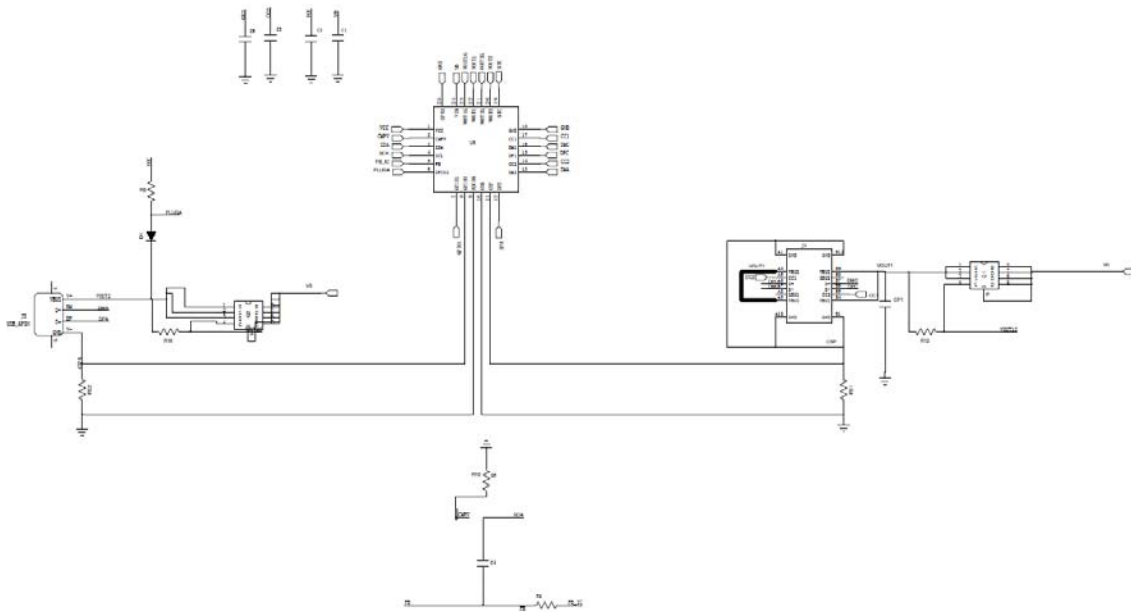
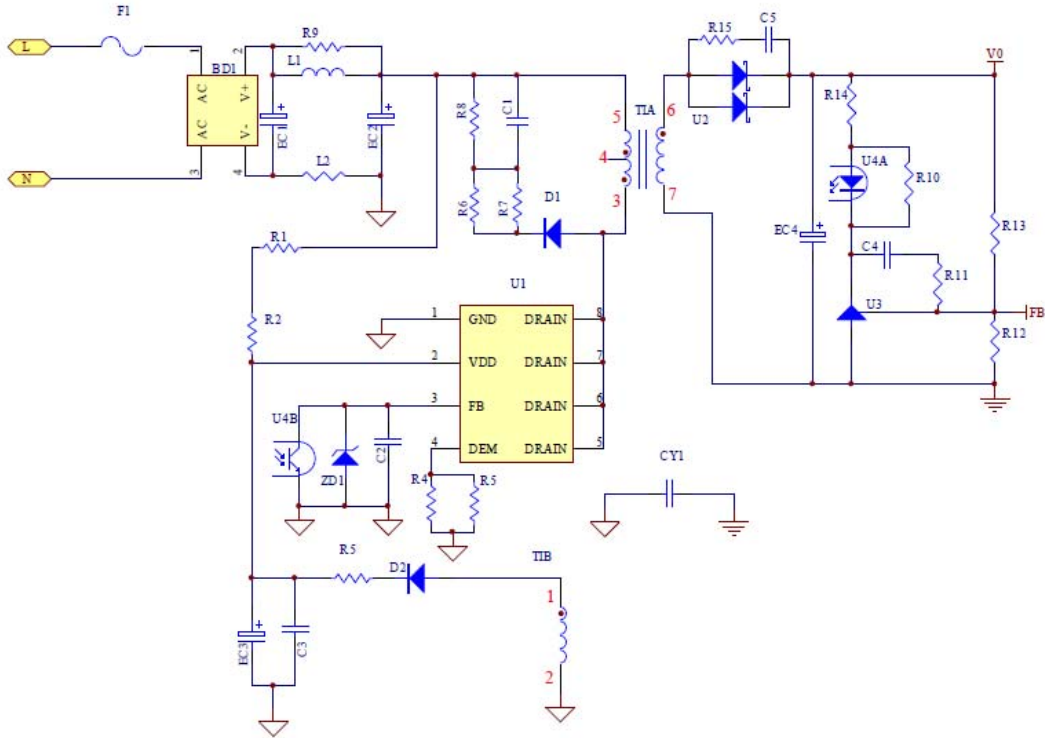
- The above markings are the minimum requirements required by the safety standard. For the final productions samples, the additional markings which do not give rise to misunderstanding may be added.
- The dimension for height of CE marking is at least 5mm and the height of WEEE directive symbol is at least 7mm height.
- The manufacturer's name and its postal address shall be included in the marking label. If the product is placed on the Union market by an importer, the product will also bear importer's name and postal address. If the importer places the product on the market under his own name or trademark, the only address that will figure on the product is the address of the importer.

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**TEST REPORT**

**APPENDIX III**

Circuit diagram

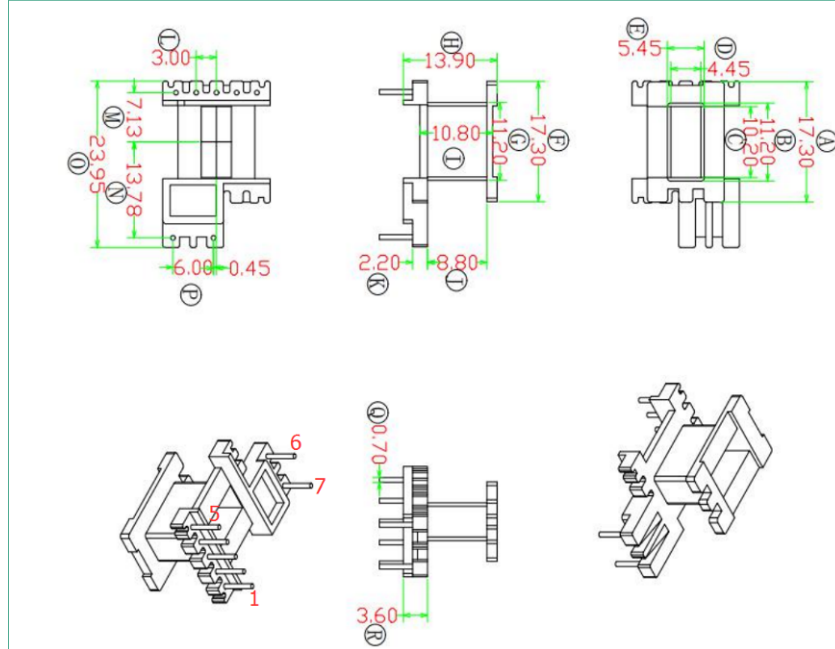


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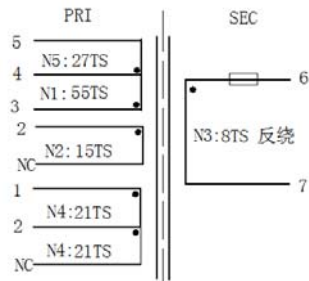
**TEST REPORT**

**APPENDIX IV**

Transformer construction



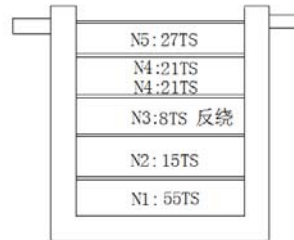
电性原理图:



PIN2脚引线接磁芯

• START □ TFL

绕线结构图:



组别	槽牆膠布	脚位	線徑 x 股數	圈數	繞線方式	膠布層次	备注
N1		3-4	2UEW $\phi$ 0.27*1P	55TS	密繞	2TS	
N2		2-NC	2UEW $\phi$ 0.15*3P	15TS	密繞	2TS	
N3		6-7 反繞	TEX-E $\phi$ 0.75*1P	8TS	密繞	2TS	骨架反裝再繞
N4		2-NC	2UEW $\phi$ 0.15*1P	21TS	同层并繞	2TS	
		1-2	2UEW $\phi$ 0.15*1P				
N5		4-5	2UEW $\phi$ 0.27*1P	27TS	密繞	2TS	

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**TEST REPORT**

**APPENDIX V**

Photo



Photo No. 1 Overall view of the appliance

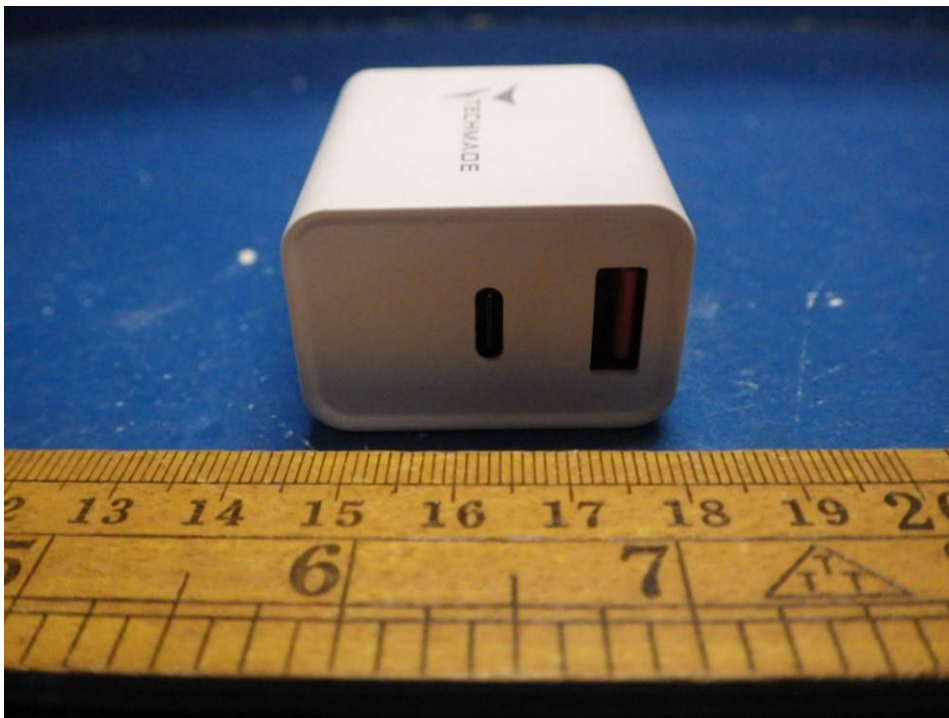


Photo No. 2 USB-A and Type-C receptacles of the appliance

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## TEST REPORT

### APPENDIX VI

European plug portion

#### Appliance combined with European plug

Supplementary tests on plug portion according to EN 50075:1990 and IEC 60884-1:2002 + A1:2006 + A2:2013 + C1:2014

Requirement - Test	References to clauses in		Result / Remark	Verdict
	EN 50075	IEC 60884-1		
<b>1 Plug portion</b>				—
CEE 7 / IEC 60083 standard sheet		9.1	XVI / C5	P
EN 50075 standard sheet	7		1	P
<b>2 Dimensions</b>				—
Checking dimensions by measuring and by gauges according to standard sheet.	7	9.1		P
The edges of the metal-pins, chamfered or rounded off.	7		Rounded off	P
<b>3 Protection against electric shock</b>				—
a Test finger (75N, 1 min in 35°C) or Applicable appliance standard.	8.1	10.1		P
b Single pole insertion. Checked with gauge: Figure 4 or C19A or C19B (CEE 7).	8.2	9.2		P
c Compression test 150N, 5 min.	13.1	10.1		P
d External parts made of insulating material.	8.3	10.4		P
<b>4 Construction</b>				—
a Test on pins which are not solid.	9.3	14.2		N/A
b Pins shall be locked against rotation 0.4Nm, 1 min.	13.2	24.2	Complied the tumbling barrel test and pins not rotate	P
c Pins shall be adequately fixed in the body 1 min. Temperature 70°C. 40N for plugs ≤ 2.5A, 50N for plugs > 2.5A.	13.4	24.10	40N	P
d Pins of copper or copper alloy min 58% copper or equivalent.	15.3	26.5-26.6	59-63% min.	P
e Plug shall not impose undue strain on fixed socket-outlets, 0.25Nm.		14.23.2	0.02Nm max.	P
f Abrasion test on the insulating sleeves 20000 movements.	13.3	24.7		P

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**TEST REPORT**

**APPENDIX VI**

Cont'd

	Requirement - Test	References to clauses in		Result / Remark	Verdict
		EN 50075	IEC 60884-1		
<b>5</b>	<b>Resistance to ageing and to humidity</b>				—
a	Subjected to a test in a heating cabinet at (70 ± 2)°C for seven days (168h). Forefinger pressed with 5N.	14.2	16.1		P
b	Humidity treatment carried out in a humidity cabinet containing air with relative humidity maintained between 91% and 95%, two days (48h).	10	16.3		P
c	Insulation resistance measured 1 min after application of 500Vd.c.	11.1	17.1		P
d	Electric strength: a.c. test voltage applied for 1 min.	11.2	17.2		P
<b>6</b>	<b>Resistance of insulating material to abnormal heat, to fire and to tracking</b>				—
a	Compression test 1 h 80°C.	14.1.2	25.4		P
b	Glow-wire test 650°C.	17	28.1.1	Enclosure	P
	Glow-wire test 750°C.	17	28.1.1	Pin sleeve	P
c	Resistance to tracking 175V (other than ordinary).		28.2		N/A

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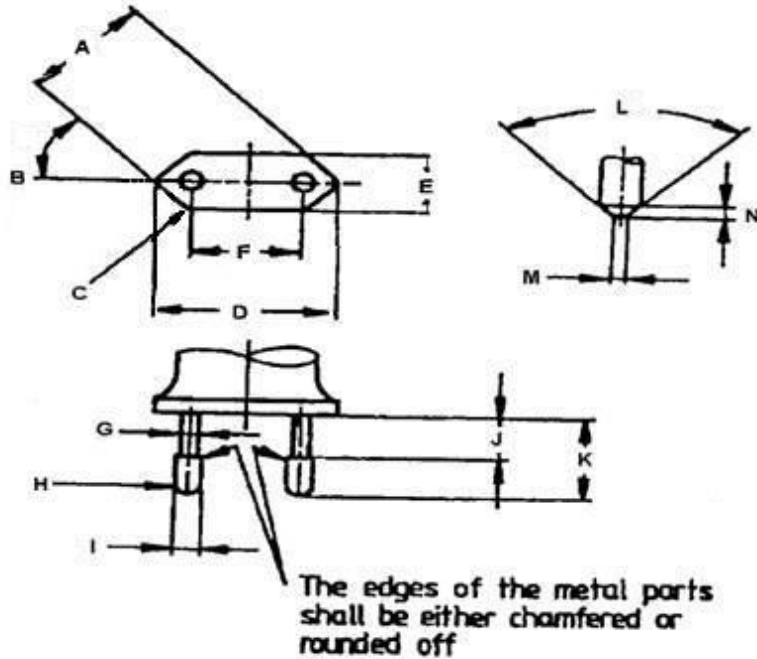
**TEST REPORT**

**APPENDIX VI**

Cont'd

**Appliance combined with European plug**

According to EN 50075:1990 - Standard sheet and CEE 7 Standard sheet XVI / IEC 60083:1997 Standard sheet C5



Symbol	Requirement (Dimension in mm)	Measured (mm) / Result	Symbol	Requirement (Dimension in mm)	Measured (mm) / Result
A	25.6 - 26.6	Min.: 25.80 Max.: 26.18	G	Above 4mm from engagement face ≤ 3.8	3.27
B	45°	45°	H	Pins end shall be rounded or conical	Rounded
C	R 5 - 6	Within the range	I	3.94 - 4.06	3.98
D	34.6 - 36	Min.: 35.13 Max.: 35.63	J	10 - 11	10.87
E	13 - 14.4	Min.: 13.66 Max.: 14.03	K	18.5 - 19.5	19.21
F	Engagement face 18 - 19.2	18.87	L	90° max.	N/A
F	End of pins 17 - 18	17.64	M	∅ 0.7 - 1.7	N/A
G	Within 4mm from engagement face ≤ 4	3.75	N	2 max.	N/A
The distance from enclosure extended to engagement face at least 18mm required					19.19

\*\*\*\*\* End of Report \*\*\*\*\*

## **INTERTEK TESTING SERVICES**

### **TO OUR CLIENTS**

#### **GUIDELINES FOR COMPLETING A DECLARATION OF CONFORMITY**

There are many Directives and Standards in place, and you should assure yourself that the correct ones have been applied to your product.

The attached blank Declaration of Conformity complies with the format published in the Official Journal of the European Community. To complete the form:

1. List all applicable Directives, by number, on the top lines.  
  
e.g. 88/378/EEC for Toy Directive  
2014/30/EU for EMC Directive  
2014/35/EU for Low Voltage Directive
2. List the Standards under these Directives to which conformity is being declared. Intertek Testing Services test report(s) which you should retain to support your declaration contain this information.
3. Add manufacturer's and importer's name and address. The importer should be located within the EU.
4. Specify the type of equipment and model. You may list a block of serial numbers corresponding to the import quantity during the year of manufacture shown.
5. The Declaration of Conformity should be signed by the manufacturer or his authorized representative established within the EU.

#### **NOTES:**

- A. A COPY OF THE DECLARATION MUST ACCOMPANY IMPORT PAPERS INTO THE EC. ADDITIONAL COPIES MAY ALSO BE SUPPLIED IN EACH PRODUCT CARTON, WITH EACH PALLETIZED SHIPMENT, IN THE INSTRUCTION MANUAL OR ON THE WARRANTY CARD.
- B. THE IMPORTER OR THE MANUFACTURER'S AUTHORIZED REPRESENTATIVE MUST KEEP THE DECLARATION OF CONFORMITY AND THE TEST REPORTS AT THE DISPOSAL OF THE AUTHORITIES FOR A PERIOD OF TEN YEARS AFTER THE EQUIPMENT HAS BEEN PLACED ON THE MARKET.
- C. ADD MANUFACTURER'S AND IMPORTER'S NAME AND ADDRESS ON THE PRODUCT. THE IMPORTER SHOULD BE LOCATED WITHIN THE EU.



**DECLARATION OF CONFORMITY**

Application of Council Directive(s):

\_\_\_\_\_

Standard(s) to which Conformity is Declared:

\_\_\_\_\_

Manufacturer's Name : .....

Manufacturer's Address : .....

.....

Import's Name : .....

Import's Address : .....

.....

Type of Equipment : .....

Model No. : .....

Serial No. : .....

year of Manufacturer : .....

I' the undersigned, hereby declare that the equipment specified above conforms to the above Directive(s) and Standard(s).

Place : .....

\_\_\_\_\_

(Signature)

Date : .....

\_\_\_\_\_

(Full Name)

\_\_\_\_\_

(Position)